

DRAFT MINUTES OF COMAL STANDARD MEETING

13TH TO 15TH MARCH 1985

1.0 Attendance

Kjell Andersson,
Anders Ansted,
Lennart Augustsson,
Peter Burkinshaw,
Borge Christensen,
David Christensen,
Paul Christensen,
Bo Gardmark,
Ingvar Gratte,
Bill Hyland,
Bo Jansson,
Jens Erik Jensen,
Erik Jeppesen,
Birgit Landgrebe,
Helge Lassen,
Len Lindsay,
Ian Malcolm,
Sven Purbe,
Angus Quin,
Kevin Ryan,

Jan Thorsson,

Jim Warwick.

2.0 Welcome

13th of March 1985, 9.30 p.m.

As the Chairman, Mr. John Clack, was unable to attend, Angus Quinn (AQ) took the Chair. He welcomed everyone to the meeting, including those from Mytech in Gothenburg. Each manufacturer then made a presentation in turn, briefly describing their involvement with COMAL. There was a discussion about the agenda, in particular about the control of the name COMAL. This and other items of a general business nature were to be discussed at a separate meeting. The Development Group would be chaired by Ingvar Gratte once he arrived. It was hoped to complete the meeting by early Saturday afternoon and it was suggested that in order to speed up work on the Standards Group there should be some restriction on who should speak, otherwise the debates could go on for a long time. The Development groups could possibly work in parallel. The meeting then adjourned until the morning of Thursday the 14th.

3.0 INTRODUCTION

Thursday 14th March 1985, 9.10 a.m.

Bo Jansson welcomed the participants to the COMAL meeting. He stated that COMAL was in danger from the improved BASICs, but on the positive side it was spreading to new machines and the implementations on the IBM PC would make it more popular. AQ responded to the welcome and agreed that there was a need to fix a standard.

4.0 ADMINISTRATION

The agenda was amended to include discussion on typing. David Christensen (DC) reported on the costs from the previous meeting and stated that he had just about managed to cover costs involved and have a small contribution towards his own personal costs. Kevin Ryan KR reported on the administrative costs incurred since the last meeting. There was now a balance of 37.82 (Ir pounds) in the account. There was therefore a need for further contributions. There was a discussion as to what expenses the Secretary should be entitled to claim. It was agreed on the proposal of Peter Burkinshaw (PB) that the Secretary should be entitled to claim for time worked (subject to ratification) up to a limit of 750 pounds in any six months. This would include normal travel expenses to meetings as well. This was accepted on a vote.

5.0 MEMBERSHIP OF GROUP:

It was agreed that the following members now constituted the Standards Group:-

1. The Chairman of the Development Group
2. UniCOMAL represented by Jens Erik Jensen (JEJ).
3. Regnecentralen represented by Erik Jeppesen (EJ).
4. AcornSoft represented by David Christensen (DC).
5. DDE represented by Anders Ansted (AA).
6. TeleNova represented by Bo Jannson (BJ) .
7. Mytech represented by Lennart Augustsson (LA).
8. TCD represented by Kevin Ryan (KR).

It was further agreed that continuing membership of the Standards Group depended on payment of a fee of 250 pounds sterling per implementer, which was to be invoiced by the Secretary when the minutes were circulated.

6.0 DATE AND PLACE OF NEXT MEETING

There was a discussion about the possibility of holding a meeting in Dublin, The United States, or Scotland, and at a date towards the end of September, but a decision was deferred.

7.0 PUBLICITY

The Secretary described the response he received to the letter by Roddy Ryan in BYTE Magazine. There had been approximately 30 enquiries and he supplied a list of the addresses of those who had enquired. Len Lindsay reported that in the United States he had received 10,000 enquiries and he had distributed an eight page flyer to each enquirer. Each manufacturer then reported on their current product and marketing situation.

7.1 ACORN SOFT:

They had sold a few thousand of the BBC COMALs, although it was in direct competition with BBC BASIC. They were particularly pleased with Scotland and they hoped to have the product reviewed shortly. In total there were 750,000 BBC Micros in production with about two thirds of these in the UK.

7.2 TELI:

They were supplying COMAL with their Machine the Compis. They had produced about 5000 machines and they were producing about 300 per week at present, which would shortly increase to 600 per week. They had approximately 60 to 70 of

the market in Sweden and they were also selling in Norway and later in Finland.

7.3 MYTECH:

Their latest implementation was on a VAX 780 and they would soon have an implementation on the Mackintosh. They have opened an office in the U.S. in San Diego to sell their products. They were using the Whitesmith Cross Compiler and accordingly they had been able to do the port to the VAX very quickly. They now have a Screen Editor available on their PC version.

7.4 RC:

They reported that their COMAL was available for their own machines only and they did not plan to use a version for other machines, however, they did plan upgrading and they were quite happy to cooperate with others.

7.5 DDE:

Their COMAL was only available on their Super VAX system which is a Unix based 68000 system. It was possible that they could produce it for other Unix systems if it was required.

7.6 UniCOMAL:

They reported their work had previously been on Commodores. They were now producing the cartridge for the 64 and this was a Commodore product. They had done an implementation for the IBM PC and this would be an IBM product. They believed that Commodore was now pushing COMAL and that the IBM version would be sold worldwide.

There followed a short discussion on the name COMAL and it was agreed to defer the legal aspects of this to a special session on business matters. However, Paul Christensen (PC) proposed and had accepted that :

the name of COMAL should be spelt with all capital letters.

8.0 Strategic Plan for COMAL's future:

KR suggested a discussion on marketing plans for COMAL. PC said that the definition of COMAL should be the main objective. There was a wide ranging discussion on what the major objective of the meetings should be, whether we should aim for a definition of COMAL or whether this would take too long and whether we should instead adopt the de facto standard such as that of UniCOMAL. BJ remarked that the Danish proposals which had been prepared by a group of implementors were a big step towards unifying the different approaches. There was a discussion about how portable COMAL could be especially as JEJ pointed out that the standard nature of COMAL is one of its strongest selling points. It was agreed that many features could not be standardised but the standard's worth appeared to be as a basis for portability. Ian Malcolm (IM) and others felt

that the process was too slow whereas Bill Hyland (BH)

and KR felt that it must be a slow process and that we must work on proposals before the meetings. Bo Gardmark (BG) stated that MYTECH had used UniCOMAL as their working standard. IG and DC both saw the need for long term and more radical planning. KR felt it was more realistic to deal with what we had and pointed out that there were very few radical proposals formulated for the meeting. There was a discussion on how the standards could be checked and it was felt that approaches such as validation suites were unrealistic for the COMAL situation. The meeting then adjourned for lunch.

9.0 DEVELOPMENT GROUP MEETING

There was a discussion as to whether two groups should continue to meet together and it was eventually agreed that a general discussion would be more beneficial. IG took the Chair and began by considering the proposals from the three Danish implementers which had been formulated by DDE.

10.0 Danish Proposals

10.1 Proposal 1:

This related to production 134, the Procedure Call Statement, and proposed that the parenthesis around the Parameter List would be optional in a Procedure Call. In favour of this proposal, it was pointed out that Print did not require parenthesis around its Parameters whereas a command Draw would. It was also difficult for the user to remember which commands required parenthesis and which ones did not. Against the proposal was the fact that syntax checking would have to be relaxed and for example misspelling of some keywords could not be detected until prepass time. There was essentially a trade off of error checking against a cleaner syntax. User's preferences were largely in favour and on a vote the proposal was accepted on a vote of 12 votes to 5.

10.2 Proposal 2:

Introduce a RANDOMIZE Statement with an optional numeric expression. Prior to the execution of any program, the random number generator would be seeded by a random value. If the user wished to specify a seed for randomising the seed value would be provided in a RANDOMIZE statement. This proposal was accepted unanimously.

10.3 Proposal 3

The RND function is allowed with zero or two arguments only. With zero arguments it returns a random value greater than or equal to 0 and less than 1. This was accepted.

10.4 Proposal 4

In production 114 all references to "device info" are removed. This was accepted unanimously. In production 117 the optional random mode field was to occur after the record length. This was accepted unanimously. It was noted that there was a need to define the semantics associated with

production 118.

10.5 Proposal 5

To remove the "device info" from the Delete statement.
This was also accepted.

10.6 Proposal 6

This was to re-word the semantics following production 46. There was a discussion as to whether the function named A could return an integer value, as integers were not in the kernal and as promotion of integers to reals was accepted. This would be allowed. The proposal was accepted.

10.7 Proposal 7

Modify the semantics of production 46, to exclude returning from a function by reaching the end of it. Make this requirement explicit in production 96. This proposal was accepted by 15 votes to one.

10.8 Proposal 8

Modify semantics of production 109 to allow labels as separators between data statements. This was accepted unanimously.

10.9 Proposal 9

Modify to allow completely empty statements. This was accepted by 14 votes to 5.

10.10 Proposal 10

Add parentheses to the examples of mod so that they are seen to be syntactically correct.

10.11 Proposal 11

Modify production 44 to allow both functions and procedures to be imported. This was accepted by 19 votes to 2.

10.12 Proposal 12

A definition of implicit rounding. There was considerable discussion on this subject, under European and U.K. standards, 2.5 and 1.5 round to the same value. L.Lindsay said this was not so in the U.S. Question was which should be the default. The proposal also wished to add three built-in functions, ROUND, ROUNDEVEN and FLOAT. There was discussion as to the usefulness of FLOAT in particular. It was eventually agreed by 15 votes to 2 that it should be an extension. ROUND, ROUNDEVEN were accepted. It was accepted also by 18 votes to 2 that Rounding Up would be the default. A FIX function was also accepted.

10.13 Proposal 13

Modify the semantics of assignment to allow for implicit conversion. It was agreed that this would be an implicit call to the FIX built-in function.

10.14 Proposal 14

Modify the semantics of production 129 defining the behaviour of zones, tabs and semi-colons in Prints. With the addition of the explicit statement that the comma has the same effect as a tab this proposal was accepted.

10.15 Proposal 15

On the semantics of the In operators. There was a debate on what should be returned if the empty string was searched for. By a vote of 12 to 5 it was accepted that it would return one more than the length of the string being searched.

10.16 Proposal 16

Change production 101, the Input statement, so that only one prompt and variable can be used. This was accepted.

10.17 Proposal 17

Was to remove some incorrect keywords from Appendix C and was amended to add the new keywords, FIX, FLOAT, ROUND and ROUNDEVEN.

10.18 Proposal 18

To remove "device info" from the Delete statement was accepted.

10.19 Proposal 19

To remove END from reserved word list was accepted.

10.20 Proposal 20

Concerning string assignment. Firstly, if the length of the string expression is greater than the length of the string variable, the string expression is truncated.
Accepted by 14 votes to 1.

Secondly, if the string expression is shorter than or equal to length of the string variable, the value is assigned and the actual length of the string variable set to the length of the string expression

Accepted unanimously.

The following two points are for assignment to substrings.

Firstly, if the length of the string expression is bigger than the length of the substring, the string expression is truncated if it is shorter, the substring is space padded.

This was accepted by 11 votes to 4.

Finally if the start index for a substring is bigger than the actual length of the string variable a runtime error occurs.

10.21 Proposal 22

On conversion errors, was deferred on the suggestion of PC that more information was required.

10.22 Proposal 23

Attempted to define the semantics of PRINT AT for rows and columns. After some discussion it was agreed to postpone this and also to postpone discussion of proposal 24.

10.23 Proposal 25

That TAB(0) was an error was accepted.

10.24 Proposal 26

That the decimal point is not printed unless there is a fractional part, this was accepted.

10.25 Proposal 27

Changing the word integer to integral in Appendix A was accepted.

10.26 Proposal 28

On what should be returned by ORD(""), was deferred.

10.27 Proposal 29

That the default string length should be "not less than 40" was rejected by 12 votes to 3.

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The meeting resumed at 9.10 a.m. on the 15th March 1985.

The Standards Group met separately to consider the proposals from the previous day. The Development Group continued to review proposals that had been received. IG remained in the Chair.

10.28 Proposal 23

This had been deferred from the previous day. It concerned PRINT and PB led the discussion by suggesting that the USING clause should also precede the AT clause because we might on occasion wish to re-use the using clause whereas the AT clause could not be re-used. The question was

whether we want to allow multiple ATs. LL pointed out that the INPUT AT statement must also be considered. BC asked whether Print using was sufficient. JEJ pointed out that the proposal allowed only one AT and after some discussion it was

accepted by 12 votes to 1.

10.29 Proposal 24

This concerned INPUT AT and was accepted unanimously. However there was a question as whether AT or TAB should need parentheses.

10.30 Proposal 28

That ORD("") returned zero was

rejected by 12 votes to 1.

Instead it was agreed by 10 votes to 1, that ORD("") caused a runtime error.

11.0 Proposals from B Christensen

The Committee then considered proposals from Borge Christensen (BC)

11.1 Proposal 1

Relating to production 134 to allow multiple procedure calls on a given input line. There was a discussion as to whether this was sacrificing readability in order to gain a small facility. BC described experiments where children had found this useful especially with LOGO. JR said that this was not really relevant to the Standards Group. IG

suggested it could be different in Command Mode but HL wanted to maintain consistency. JW said that Command Mode was not yet defined.

The proposal was defeated by 7 votes to 6, but it was accepted for the extension by 12 votes to zero.

11.2 Proposal 2

That the LOOP-ENDLOOP statement be added to the kernal of the language. The chairman decided to consider separately addition of the statement and subsequently the idea of allowing a TIMES option. The addition of a LOOP-ENDLOOP statement was accepted by 8 votes to 3. Although there were some reservations about the addition of the TIMES option, to limit the number of iterations of the LOOP statement, it was eventually accepted as an extension by 13 votes to 1.

11.3 Proposals 3 and 4

Had already been discussed.

12.0 Cambridge Proposals

The committee then dealt with the proposals from the Cambridge group. The secretary apologised that due to a misunderstanding these had not been circulated prior to the meeting. In accordance with the rules they could not be voted on officially but would be discussed in principle.

12.1 Proposal 1

Allow the passing of procedure identifiers as parameters. This was generally favored. It would require that procedures and functions be added to the IMPORT list. HL pointed out the need for array indicators.

12.2 Proposal 2

Add a structured DATA statement.

This had a twofold purpose : to provide a resident equivalent to sequential files, and also to resolve the scope of the DATA statement.

It was suggested that the construction DATABLOCK and ENDDATA would be more useful. IG wondered whether we needed it at all. JW suggested that we should allow the importation of these DATABLOCKS. On a vote it was supported by 14 to 1.

12.3 Proposal 3

Provide a LIBRARY facility.

Speaking as a user IM was very keen on this idea. Other users supported him but the implementers were hesitant because of difficulties they foresaw. PB asked what would happen if an error occurred in a library program. Where would the program stop? On the assumption that they would be dealt with as "black boxes" so that error handling would always return you to the main program, the principle of libraries as an extension to Comal was favored by 12 to 1.

12.4 Proposal 4

A Structured Error Handler

(During this discussion the group from the Standards meeting returned.) JW favored the proposal as being preferable to the Unicomal proposal as it did not require nesting. BC wondered if it was in the spirit of Comal whereas IG wished to see a comparison of the two proposals. DC wished the error handler to be concise and unobtrusive. Their proposal allowed the default to be system dependent. When an error occurred the location would be saved and the error procedure would be executed. DC gave some examples and EJ and PB said their systems were quite similar. LA felt this was not a structured approach since you could not, for example, stack handlers. He gave an example of the MYTECH solution. BH suggested that the problem should be formulated for academic consideration. He wondered whether this problem was unique to Comal. KR suggested that it

should be postponed and reconsidered. JEJ said we already had more than Pascal. There was a discussion about the merits of allowing RETRY. On the chairman's question as to whether we wanted features of both systems there was a vote of 12 in favour. LL suggested we enter two solutions as extensions. PB volunteered to draft a synthesis of the two approaches.

12.5 Proposal 5

Allow a formatting Mask for output of numeric and string data.

It was suggested that the proposed facility was too complicated and we should consider including a less powerful version of it. EJ described the origins of the PRINT USING statement. DC was keen to extend the language to business users. LL felt there was no great demand for it. The Chairman asked how many favored having an exponential format. Members were 17 to 0 in favor. The suggestion that anything that was not a format character was to be printed "as is" was acceptable to all.

12.6 Proposal 6

An extended FOR-NEXT statement.

It was argued that this was not a very popular feature even in languages that had it. The proposal was rejected by 20 to 0. On the proposal to define the value of the control variable upon normal exit from the loop there was a discussion as to whether this was desirable or not. It was agreed that the action of the next operation is to increase the value of the control variable until such time as the control variable exceeds the terminating value. On further discussion it was agreed by 16 to 5 that the loop counter variable has the same scope as any other variable. Finally it was agreed by 17 to 3 that the value of the control variable was undefined on termination of the loop.

12.7 Proposal 7

Add a TIME function.

The proposal for a builtin function to convert a real number of seconds into its hours minutes seconds form was supported by 11 to 3, but as this was not the required majority it failed. The proposal for a system function called TIMER which returns a real number that represents the passage of time, measured in seconds, was accepted. After some debate and some preliminary measures of opinion it was agreed to accept a DATE\$ function as outlined and to accept a TIME\$ function as described in the proposal.

12.8 Proposal 8

Allow a user to ascertain the dimensions of an array.

With a change of names to MININDEX and MAXINDEX this was accepted by 16 to 2.

12.9 Proposal 9

Add GET and PUT statements.

From discussion it emerged that there was no clear picture of what was currently implemented. This information was needed before the proposal could be usefully considered.

This completed the Cambridge proposals.

13.0 Telenova proposals

A proposal from Telenova aimed to clear up the definitions of DIV and MOD. The first proposal was to modify paragraph 1 of the semantics of production 72 by adding $\text{INT}(x/y)$. The second proposal was to allow y to be negative in $\text{MOD}(x,y)$. Both were accepted by 19 to 0.

IM withdrew a number of proposals, but mentioned that he would like to see a proposal for records in future.

IM also distributed a proposal on the use of blank spaces in Comal programs for which he requested responses directly to him.

16th March 1985

14.0 Standards Committee Decisions

AQ reported the business from the standards committee.

These are the minutes of the standards committee and the record of the formal decisions made.

References are to the numbers assigned to the proposals by the proposers and are as used above.

Danish Proposal 1 : Accepted by 6 votes to 1 (extension).

Danish Proposal 2 : Accepted by 7 votes to 0 (kernel).

Danish Proposal 3 (amended) : Accepted by 7 votes to 0 (kernel).

Danish Proposal 4 (amended) : Accepted by 7 votes to 0 .

It was noted that an extension would be needed for overwriting.

Danish Proposals 5,6,7,8 : Accepted by 7 votes to 0.

Danish Proposal 9 : Accepted by 6 votes to 0 .

Danish Proposals 10,11: Accepted by 7 votes to 0.

Danish Proposal 12 : The implicit rounding function was accepted unanimously and the four functions ROUND, ROUNDEVEN, FLOAT and FIX were to be added to the extensions . Their semantics were defined in terms of the implicit rounding function.

Danish Proposal 13 (amended) : Accepted by 7 votes to 0.

Danish Proposal 14 : Accepted by 7 votes to 0 (minor amendments).

Danish Proposal 15 : Modified so that the search for the empty string in a nonempty string would always return 1. This was accepted by 6 votes to 0.

Danish Proposal 16,17,18 and 19 : Accepted by 7 votes to 0.

Danish Proposal 20 : Accepted by 6 votes to 1.

Danish Proposal 21 : Accepted by 6 votes to 1.

Danish Proposal 22,25 and 26 : Accepted by 7 votes to 0.

Danish Proposal 23,24 and 28 : Were still with the development group.

Danish Proposal 27 : Accepted by 7 votes to 0.

Danish Proposal 29 : REJECTED by 7 votes to 0.

It was agreed that the Danish proposals numbered 23 and 24 would be referred to the next meeting of the standards group.

After some discussion it was agreed that was a need to clarify points raised at the last two meeting.

The meeting then broke into a number of working groups.

15.0 Reports from Working Groups

15.1 Package/Library Group

PB reported. They discussed the use of packages libraries and externals, the need for a visible interface, handling name collisions, and how the facilities could be accomodated with a compiler.

AA proposed a syntax and will refine it to include semantics for the next meeting.

15.2 Graphics.

LL reported. A set of graphics commands should form an extension. These should conform to GKS as far as possible and should treat text and graphics separately. LL outlined the various commands for both turtle and xy graphics and is to circulate this within 2 months.

15.3 Command Language .

KR reported. Made a list of possible commands and agreed the semantics of a small number of these. A group made up of BC, IM and IG were to make a list of commands and circulate it within 2 months.

16.0 Conclusion.

Before closing the meeting, IG said he would like to know what are the areas of dispute in the standard at present, particularly from the point of view of the implementers. He asked that 2 copies of the standards be circulated with the minutes so that one copy could be returned with divergences or points of disagreement marked.

KR expressed the thanks of all present to Telenova for the excellent hospitality we had received.